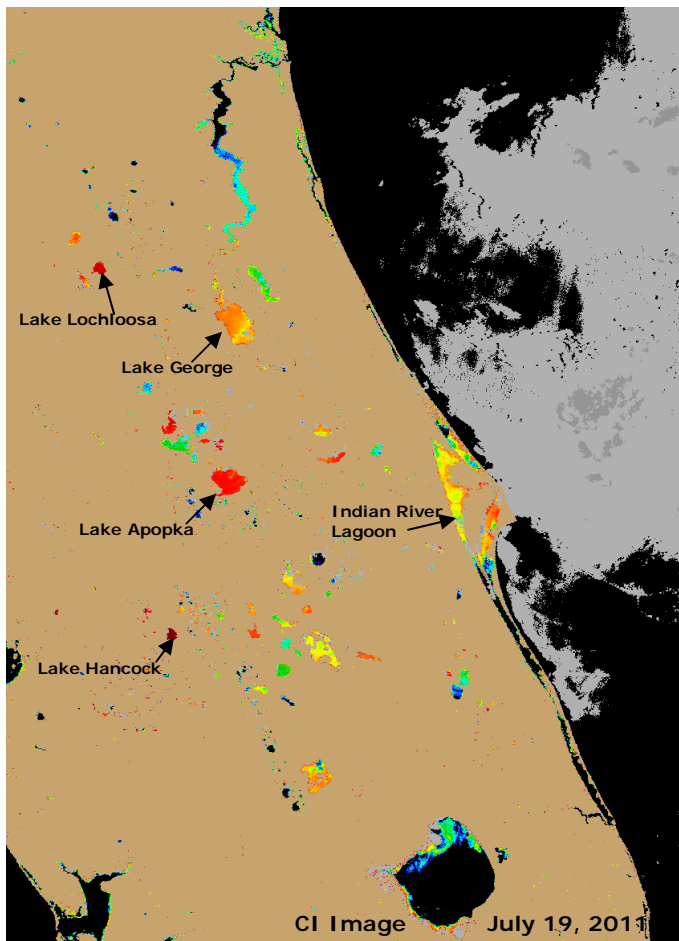


To report an illness related to a marine toxin or algal bloom please contact the FL Department of Health Aquatic Toxins Hotline at 1-888-232-8635.

For questions about the report: please contact Becky Lazensky, FL-DOH, at 352-955-1900. Images/data were obtained from Florida Water Management Districts, The National Oceanic and Atmospheric Administration (NOAA), NOAA National Climatic Data Centers and National Weather Centers. Support to produce this report was received through a NOAA/NASA Agreement (Number: NNH08ZDA001N)



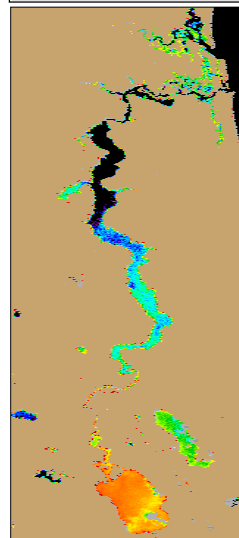
Conditions Report: July 19, 2011

- Cyanobacteria estimates were high in multiple lakes including Lake Hancock, Apopka, and Lochloosa.
- The St Johns River displayed low-medium concentrations of cyanobacteria with the highest levels in Lake George.
- A recent fish kill near South Marco Beach was associated with a confirmed *Pseudo nitzschia* bloom.
- Toxic blooms of this diatom may produce a neurotoxin called domoic acid which causes Amnesic shellfish poisoning (ASP).
- Health significance: While ASP is a health threat in other regions, currently no ASP cases have been traced back to shellfish harvested in FL.

Lake Hancock



Indian River Lagoon



St Johns River Water Management District Algal Toxin Screening, July 21 -25, 2011.

Microcystins sampling was conducted in the lower St. Johns River by the St. Johns River Water Management District. Microcystin concentrations have increased slightly since prior sampling with levels above detection limits at several locations. Concentrations are still well below recommended action thresholds for recreational use. For a full report email John Hendrickson at: jhendrickson@sjrwmd.com

Station	Date	Microcystin (ppb)
Outlet of Lake George	0721	0.43
St. Johns River (SJR)-Racy Pt.	0725	0.17
SJR-Shands Bridge	0725	0.82
SJR-Highway 40, Astor	0721	1.64
Crescent Lake	0721	0.56
Northern Lake George	0721	0.58

Cyanobacteria and the Impact on Health and the Environment

Recent research from the US EPA's National Lakes Assessment (sample=1,028 sites) found that 30% had microcystins present.



A survey of southeastern states conducted by USGS & local environmental agencies of 240 freshwater sources in Florida, Alabama, Georgia, Tennessee, & Kentucky found that 87% had detectable microcystins of which 9% surpassed WHO's limit for safe drinking water ($>1 \mu\text{g L}^{-1}$)
Credit: <http://water.usgs.gov/wrri/2011grants/National/2011AL121G.html>

Toxins produced by certain cyanobacteria species including microcystins contain known neurotoxins, hepatotoxins, and dermatotoxins. (Credit: FWC Resource Guide; see link below)

For information on the health effects associated with microcystin exposure visit: FWC Resource Guide: <http://www.myfloridaeh.com/medicine/aquatic/resourceguidepublichealth.pdf>

The MERIS Satellite Images above display a cyanobacteria index generated with a Medium Resolution Imaging Spectrometer (MERIS) satellite provided by the European Space Agency & NOAA.

- Very low likelihood of a bloom.
- May indicate clouds or missing data.
- Low cyanobacteria concentrations.
- Medium cyanobacteria concentrations.
- Probable bloom or higher cyanobacteria concentrations.

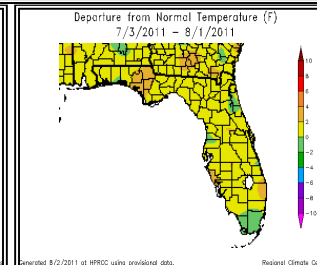
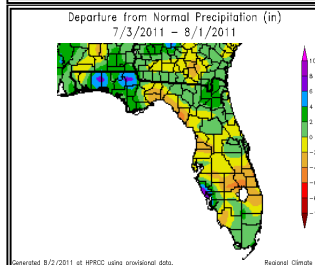


Recent Blooms/ Fish Kills

Photo courtesy of The NOAA Northwest Fisheries Science Center at:

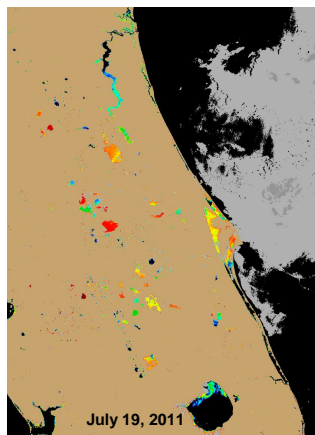
http://www.nwfsc.noaa.gov/hab/habs_toxins/hab_species/pn/index.html

Coordinates: 25.9117, -81.7281
Location: South Marco Beach, FL (Collier County)
Select Confirmed Species: *Pseudo nitzschia* (116,600 cells/l), *Proboscia alata* (40,300 cells/l), and *Rhizosolenia setigera* (12,600 cells/l)
Sampled By: Florida Fish and Wildlife
Sample Collection Date: July 25, 2011



Interpreting Medium Resolution Imaging Spectrometer Satellite Imagery

- The medium resolution imaging spectrometer (MERIS) is located on the Envisat satellite deployed by the European Space Agency.
- The cyanobacterial index algorithm shown in this report is designed to identify high biomass algal blooms caused by cyanobacteria. However, the current algorithm tends to have false positives, so other blooms may be "flagged". NOAA is currently testing new algorithms that are more specific to cyanobacteria.
- Data can be used to estimate near surface cyanobacteria concentrations which are an indication that algal blooms may be present.
- The mathematical algorithms used to generate the satellite images can vary, resulting in some models having a higher likelihood of detecting surface blooms.
- While patches of red or warm colors may indicate a bloom, these data have not been verified in most cases using ground-truth methods. Data collected by the satellite is considered experimental.
- Only portions of Florida are in the satellite's current coverage area.



- Several environmental factors may affect how results can be interpreted. For example, areas with abundant aquatic plant vegetation may present with a high cyanobacteria index on the color spectrum, resulting in a false positive bloom reading.
- The satellite identifies the biomass near the surface (in the upper few feet of water). As a result, it may underestimate the total biomass for blooms that are mixed or dispersed through the water column. Turbidity does not otherwise influence the algorithms. The satellite imagery does not display the species of algae present.
- Cloud coverage can obscure imagery and create patches or gray areas on map and obscure bloom detection.
- Weather conditions can impact the duration and location of blooms and the satellite imagery shown in this report may no longer be relevant. Images represent the last image taken with a realization that blooms may have moved, dissipated or intensified.

To review HABs satellite reports in the Gulf of Mexico and marine waters visit the NOAA Harmful Algal Bloom Operational Forecast System bulletin archive at: <http://tidesandcurrents.noaa.gov/hab/bulletins.html>



For Individual Weather Station Data Visit:
http://www.sercc.com/climateinfo/historical/historical_fl.html

Questions about the report or suggestions: You can contact Becky Lazensky, MPH
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Becky_Lazensky@doh.state.fl.us